

CLAIMS**What is claimed is:**

- [C1] 1. A placement structure for facilitating placement of an implantable device having at least two electrodes proximate to neural / muscular tissue, said placement structure comprising:
- a holder having a hollow cavity formed within for holding and retaining the implantable device within;
- at least one set of elastic wings for capturing neural / muscular tissue; and wherein
- said placement structure is primarily formed from a biocompatible plastic.
- [C2] 2. The placement structure of claim 1 wherein said biocompatible plastic is silastic.
- [C3] 3. The placement structure of claim 1 wherein at least one of said wings additionally comprises a hook portion for capturing the neural / muscular tissue.
- [C4] 4. The placement structure of claim 1 wherein the implantable device is essentially tubular and said holder is essentially semi-circular in cross section having first and second end plates enclosing said hollow cavity in-between, wherein said holder is suitable for elastically retaining the implantable device.

[C5] 5. The placement structure of claim 1 wherein said wings of said placement structure have inner and outer surfaces with said inner surfaces of said wings directed toward said holder and wherein said structure is suitable for retaining neural / muscular tissue in contact with the electrodes of the implantable device by providing an elastic force from the inner surfaces of said wings toward the implantable device within said holder.

[C6] 6. The placement structure of claim 1 wherein said wings of said placement structure have inner and outer surfaces and at least one of said wings includes an electrically conductive portion on its inner surface that provides an electrically conductive path to a portion of said hollow cavity of said holder, wherein at least one of the electrodes of the implantable device is electrically connected to the inner surface of at least one of said wings when the implantable device is inserted within said holder.

[C7] 7. The placement structure of claim 6 wherein said conductive portion is formed to minimize eddy currents.

[C8] 8. The placement structure of claim 7 wherein said conductive portion is comb shaped.

[C9] 9. The placement structure of claim 7 wherein said conductive portion is formed from serpentine paths.

- [C10]** 10. The placement structure of claim 6 wherein the implantable device has two electrodes and said placement structure comprises two sets of wings, and wherein a first set of wings is formed to electrically connect to a first electrode of the implantable device and a second set of wings is formed to electrically connect to a second electrode of the implantable device.
- [C11]** 11. The placement structure of claim 6 wherein the implantable device has proximal and distal electrodes and said placement structure comprises first and second opposing wings and wherein a first electrically conductive path is formed between a proximal portion of said hollow cavity and said first wing and a second electrically conductive path is formed between a distal portion of said hollow cavity and said second wing, wherein the proximal electrode of the implantable device is electrically connected to the inner portion of said first wing and the distal electrode of the implantable device is electrically connected to the inner portion of said second wing when the implantable device is inserted within said holder.
- [C12]** 12. The placement structure of claim 11 wherein said distal portion of said holder includes a boot type structure having an inner surface for holding the distal end of the implantable device and wherein at least a portion of said inner surface of said boot type structure includes electrically conductive paths for providing electrical connection between the distal electrode of the implantable device and said second wing when the implantable device is inserted within said holder.

[C13]

13. The placement structure of claim 6, wherein the implantable device has a plurality of sensor / stimulator portions coupled to a plurality of electrode connectors at the outer surface of the implantable device, said placement structure additionally comprising:

a plurality of electrodes distributed within said wings;

a plurality of electrically conductive portions within the holder and said hollow cavity for coupling the electrode connectors of the implantable device to said plurality of electrodes; and wherein

said structure is suitable for interfacing to said electrodes to selectively sense signals from the neural / muscular tissue and/or steer stimulation currents to selective portions of the neural / muscular tissue.

- [C14]** 14. A method for forming a placement structure for facilitating placement of an implantable device having at least two electrodes proximate to neural / muscular tissue, said method comprising the steps of:
- forming a holder having a hollow cavity formed within for holding and retaining the implantable device within;
- forming at least one set of elastic wings for capturing neural / muscular tissue integral to said holder; and wherein
- said holder and said wings which comprise said placement structure are primarily formed from a biocompatible plastic.
- [C15]** 15. The method of claim 14 wherein said steps of forming said holder and forming at least one set of elastic wings comprises forming said holder and wings from silastic.
- [C16]** 16. The method of claim 14 wherein said step of forming at least one set of elastic wings additionally comprises forming a hook portion on at least one of said wings for capturing the neural / muscular tissue.
- [C17]** 17. The method of claim 14 wherein the implantable device is essentially tubular and said step of forming said holder comprises forming a holder which is essentially semi-circular in cross section having first and second end plates enclosing said hollow cavity in-between, wherein said holder is suitable for elastically retaining the implantable device.

- [C18] 18. The method of claim 14 wherein said wings of said placement structure have inner and outer surfaces and said step of forming at least one set of elastic wings comprises forming said wings with said inner surfaces of said wings directed toward said holder wherein said structure is suitable for retaining neural / muscular tissue in contact with the electrodes of the implantable device by providing an elastic force from the inner surfaces of said wings toward the implantable device within said holder.
- [C19] 19. The method of claim 14 wherein said wings of said placement structure have inner and outer surfaces and said step of forming at least one set of elastic wings comprises forming at least one of said wings to include an electrically conductive portion on its inner surface that provides an electrically conductive path to a portion of said hollow cavity of said holder, wherein at least one of the electrodes of the implantable device is electrically connected to the inner surface of at least one of said wings when the implantable device is inserted within said holder.
- [C20] 20. The method of claim 19 wherein said step of forming at least one of said wings to include an electrically conductive portion comprises forming said conductive portion to minimize eddy currents.
- [C21] 20. The method of claim 20 wherein said step of forming said conductive portion to minimize eddy currents comprises forming said conductive portion which is comb shaped.
- [C22] 21. The method of claim 20 wherein said step of forming said conductive portion to minimize eddy currents comprises forming said conductive portion from serpentine paths.

[C23] 23. The method of claim 19 wherein the implantable device has two electrodes and said step of forming at least one set of elastic wings comprises forming two sets of wings wherein a first set of wings is formed to electrically connect to a first electrode of the implantable device and a second set of wings is formed to electrically connect to a second electrode of the implantable device.

[C24] 24. The method of claim 19 wherein the implantable device has proximal and distal electrodes and said step of forming at least one set of elastic wings comprises forming first and second opposing wings and wherein a first electrically conductive path is formed between a proximal portion of said hollow cavity and said first wing and a second electrically conductive path is formed between a distal portion of said hollow cavity and said second wing, wherein the proximal electrode of the implantable device is electrically connected to the inner portion of said first wing and the distal electrode of the implantable device is electrically connected to the inner portion of said second wing when the implantable device is inserted within said holder.

[C25] 25. The method of claim 24 wherein said step of forming said holder comprises forming said distal portion of said holder to include a boot type structure having an inner surface for holding the distal end of the implantable device and wherein at least a portion of said inner surface of said boot type structure includes electrically conductive paths for providing electrical connection between the distal electrode of the implantable device and said second wing when the implantable device is inserted within said holder.

[C26]

26. A method for facilitating placement of an implantable device having at least two electrodes proximate to neural / muscular tissue using a placement structure comprised of a holder having a hollow cavity formed within for holding and retaining the implantable device within and at least one set of elastic wings for capturing neural / muscular tissue, said method comprising the steps of:

snapping the implantable device within the holder portion of the placement structure;

folding the elastic wings inward toward the implantable device within the holder portion;

inserting the placement structure with inwardly folded wings within the hollow portion of a laparoscopic type insertion device;

placing the distal end of the laparoscopic type insertion device proximate to a desired neural / muscular pathway;

ejecting the placement structure from the distal end of the laparoscopic type insertion device;

capturing the desired neural / muscular pathway with the unfolded elastic wings; and

removing the laparoscopic type insertion device.

- [C27]** 27. An implantable structure formed for facilitating placement proximate to neural / muscular tissue of an integral device for modifying and/or affecting the neural / muscular tissue, said structure comprising:
- a biocompatible holder portion forming an essentially U-shaped cavity having at least one set of elastic wings suitable for capturing neural / muscular tissue;
- stimulator / sensor circuitry integrally contained within said holder; and
- at least two electrodes coupled to said stimulator / sensor circuitry integrally contained within said U-shaped cavity; and wherein
- said structure is suitable for retaining neural / muscular tissue in contact with the electrodes by providing an elastic force from the inner surfaces of said wings toward the neural / muscular tissue.
- [C28]** 28. The placement structure of claim 27 wherein said elastic wings are formed from a silicon impregnated cloth.
- [C29]** 29. The placement structure of claim 27 wherein at least one of said wings additionally comprises a hook portion for capturing the neural / muscular tissue.